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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,413	09/13/2004	Masayuki Nate	121108	6891
25944	7590	04/30/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER BODAWALA, DIMPLE N	
			ART UNIT 1722	PAPER NUMBER
			MAIL DATE 04/30/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/507,413

Applicant(s)

NATE ET AL.

Examiner

Dimple N. Bodawala

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,9,10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7,9-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Claims 7, 9-10, and 12 are pending.

In view of amendment, following rejection/objection are withdrawn from the previous office action, mailed on November 16th, 2006.

- ✓ Objection of drawings.
- ✓ Objection of specification.
- ✓ Rejection of claim 7 under 35 U S C 112, first and second paragraphs.
- ✓ Rejection of claim 7 under 35 U S C 102 (b) as being anticipated by Yamamoto (U S Patent No. 4,373,895).

New Grounds of Rejections

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US Patent No. 4,373,895) in view of Inoue et al. (U S Patent No. 6,159,431).

Yamamoto (' 895) discloses the extrusion die for forming the honeycomb structure, which comprises the groovy slots (slits) (3), which are arranged at the front surface of the die body and have the desired shape and size for the honeycomb

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structure. The slit is being formed by the passage (block) (2) and round pooling holes, which are arranged at the back surface of the body. Each of the holes is radially drilled in such position to connect the slits. (See col. 1 line 18 - 25, Figure 1). It also discloses the honeycomb structure which has the number of the cellblocks on per side of the die is an even number that is 200 to 800 cells per square inch. (See col.4 Line 45 - 50).

Yamamoto ('895) discloses all claimed structural limitation, but does not disclose the curved portions, which are formed at the four corners of peripheral portion of the die.

In the analogous art, Inoue ('431) discloses the honeycomb structural body which comprises the curved portions are formed at four corners of a peripheral portion of the die and a radius of curvature of the curved portion is not less than 0.05 mm (See table 1).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Yamamoto ('895) by providing the curved portions with radius of not less than 0.05 mm because such an alignment provides reinforcing portion due to the compressive forces applied to the thinner cell wall of the body from the exterior in the handling

of structural body (See col.2 lines 34-38) as suggested by Inoue ('431).

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Yamamoto ('895) or Inoue ('431) in view of Masaaki (JP 2000 - 326318).

Yamamoto ('895) and/or Inoue ('431) disclose all structural limitations as discussed above. Yamamoto ('895) also discloses the properties of the die, which is excellent in extrusion moldability. But they do not specify the material for making the die.

In the analogous art, Masaaki ('318) discloses the method of manufacturing die for a honeycomb structure from the cemented carbide by having high abrasion resistance. (See page 5 paragraph 34). It further discloses that the cemented carbide is followed by the hard sintering with the metallic carbide powder of the metal (Fe, Co, and Ni) belonging to the group of 4a, 5a and 6a from the periodic table at high temperature with high toughness. (See page 5, paragraphs 36 and 38).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have modified the honeycomb forming die of either Yamamoto ('895) or Inoue ('431) with the cemented carbide material which is followed by sintering and adding the metallic powder for the purpose of

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ensuring that the die structure has adequate junction strength and toughness as disclosed by Masaaki ('318).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Yamamoto ('895) or Inoue ('431) in view of Suzuki (U S Patent No. 6,193,497).

Yamamoto ('895) and/or Inoue ('431) disclose all structural limitation as discussed above, but do not specify the thickness of the die plate.

In the analogous art, Suzuki ('497) discloses the honeycomb extrusion die, which comprises the thickness of the die (Plate) for forming a honeycomb body is 15 mm. (See col.4 line 43).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have modified the honeycomb forming die of either Yamamoto ('895) or Inoue ('431) with the thickness of the die plate because such alignment is involved to optimize target properties of the formed honeycomb structure as suggested by Suzuki ('497).

Response to Arguments

Applicant's arguments with respect to claim 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

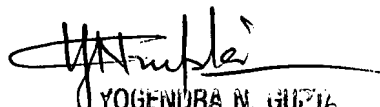
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dimple N. Bodawala whose telephone number is (571) 272-6455. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra N. Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DNB


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